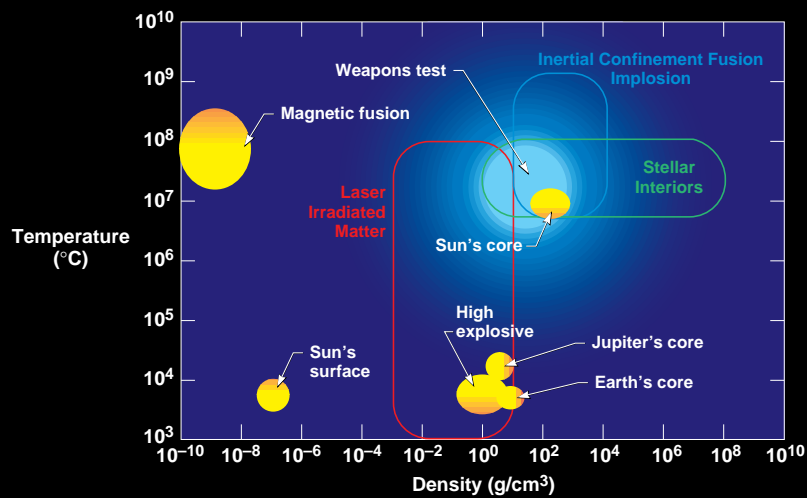
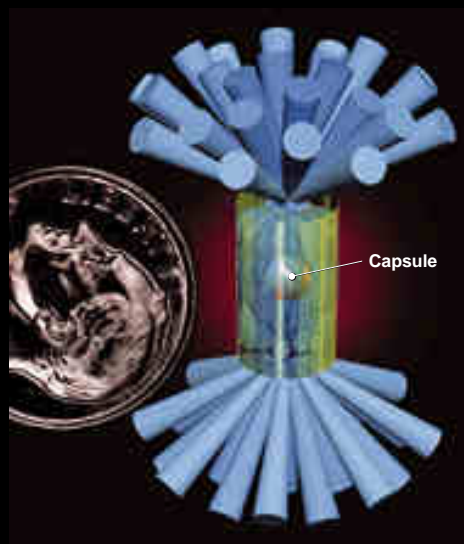


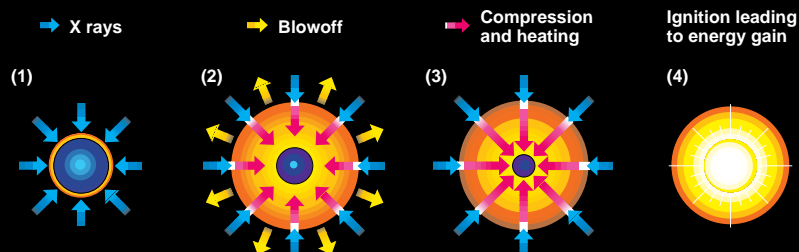
Plasma Conditions



Plasmas for national security span an enormous range in temperature and density. For example, nuclear weapons conditions overlap with stellar interior and ICF plasmas.



In Inertial Confinement Fusion, laser beams or ion beams energize the inside of a hohlraum target. X rays then rapidly heat the capsule (1), causing its surface to blow off (2). The resulting force compresses the plasma fuel (hydrogen isotopes), raising temperatures to 100,000,000°C and densities to 20 times greater than lead. This ignites the plasma fuel (3) and produces a fusion energy output (4) many times the laser energy input (energy gain).



High-energy-density plasmas created from Inertial Confinement Fusion (ICF) experiments have strong governmental support because of their utility for weapons research. The plasmas within an ICF target are similar to those in a nuclear weapons test.